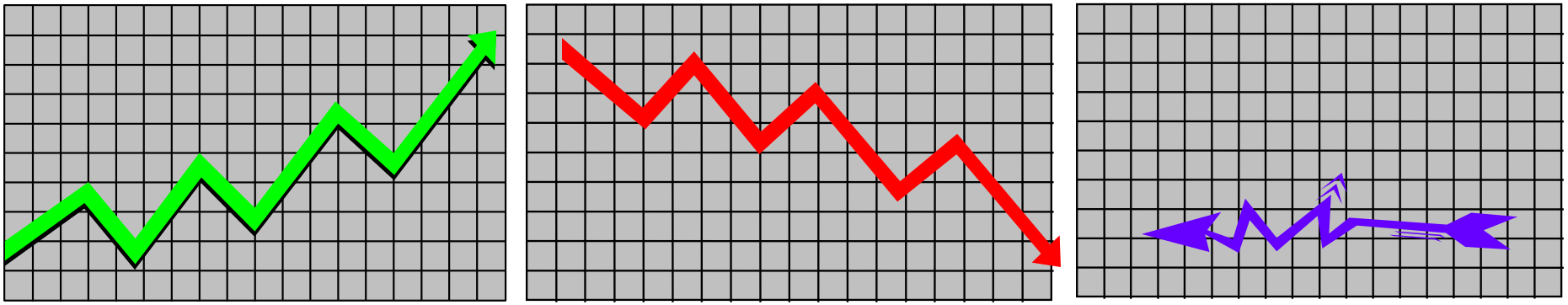


U. S. ARMY
ANALYSIS & FORECASTING TOOLS
for Civilian Workforce Planning

WASS+ INTRODUCTION

WASS Characteristics

- Civilian personnel data warehouse
  - 29 years of historical data
  - 31 million employee records (snapshot)
  - 61 million transaction records
  - 140 data elements per record
  - 100 computed fields (retirement eligibility, Army length of stay, etc.)
- Statistical analysis routines used to retrieve data (SAS scripting)
  - Not a query-able database

WASS Data Files

- Strength data
  - Quarterly “snapshots” from 1974 to present
- NOA files for specialized studies
- Edited Gains and Losses files
  - Gains: accessions, transfers in
  - Losses: separations, retirements, voluntary separations, involuntary separations
  - Data element changes

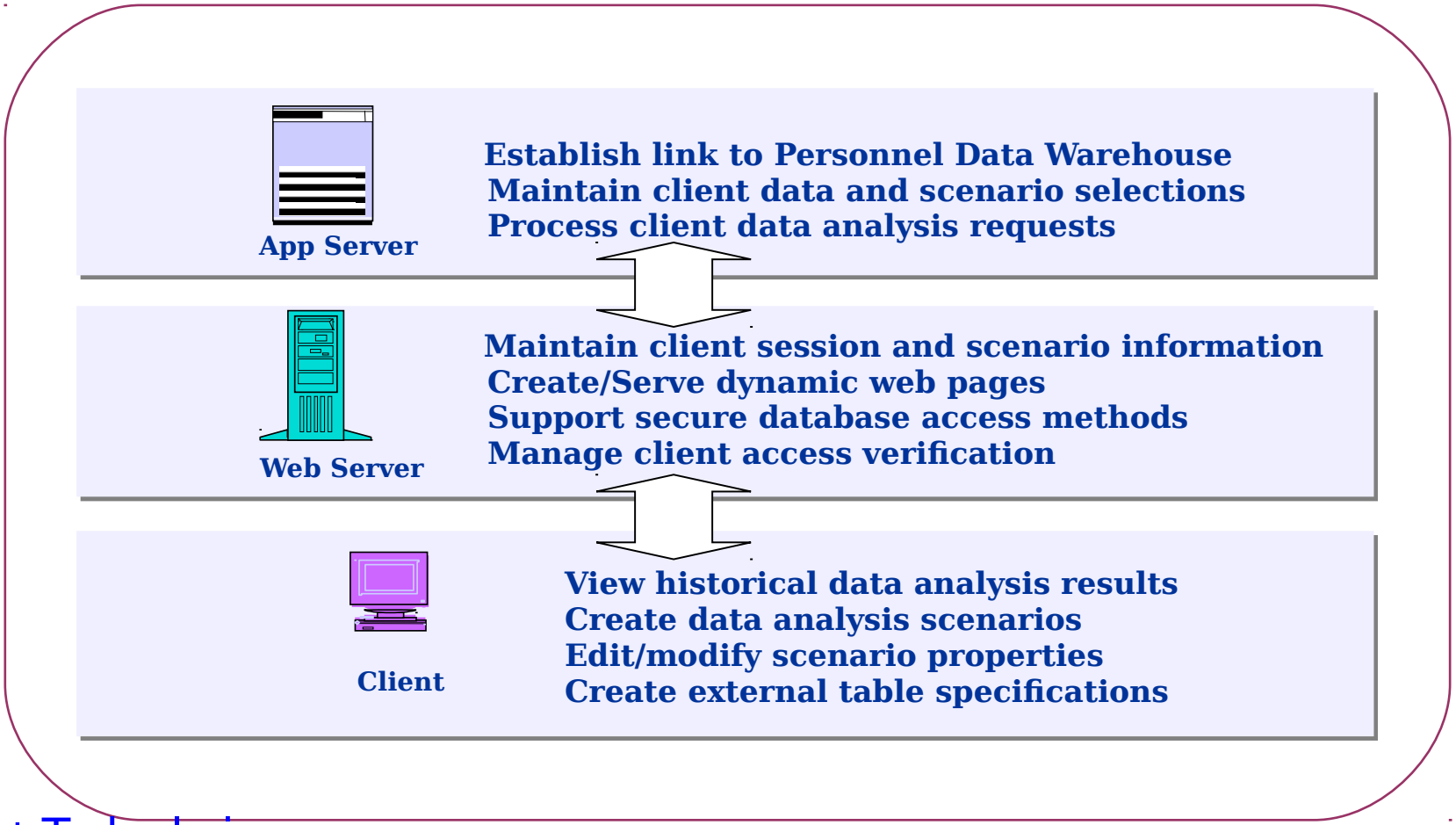
Basic WASS Applications

- **Turnover**: provides basic turnover numbers (losses, accessions over time) to assist in measuring turnover and determining if you have a turnover problem
- **Aging workforce**: provides age data over time to identify occupations, career programs, etc. that may need succession planning
- **Retirements**: provides retirement data over time to identify trends, predictability, upcoming retirement bubbles

Sample of actual WASS applications

- To assess use of recruitment/relocation bonuses and retention allowances
- To assess turnover of selected populations (e.g., Air Traffic Controllers and Nurses) at specified locations to help determine needs for pay change proposals
- To identify retired Budget Analysts who might consider reemployment
- To provide EEO Action Agency numbers of minorities/women for reporting purposes
- To provide trend information on accession of retired military
- To ascertain extent of use of monetary performance awards and dollar amounts of such awards
- To assess high grade/supervisory position fills
- To assess number of competitive vs. non-competitive promotion actions
- To identify temporary/permanent/term composition of work force over time
- To assess age/years of service at time of retirement over time
- To identify retirement system coverage of various segments of the work force for budget estimating purposes

WASS+ Architecture


App Server
Establish link to Personnel Data Warehouse
Maintain client data and scenario selections
Process client data analysis requests
Web Server
Maintain client session and scenario information
Create/Serve dynamic web pages
Support secure database access methods
Manage client access verification
Client
View historical data analysis results
Create data analysis scenarios
Edit/modify scenario properties
Create external table specifications

WASS+ Technologies

Thin Client, Web Server (Windows NT w/ Oracle 8), and Database/SAS Server; **Secure environment** - X.509 certificates, Secure Socket Layer (SSL); **Web interface** w/ Java Server Pages and Servlets; **GUI** - HTML and Javascript; Analysis: SAS tools

Validation

WASS - 27+ years data base/analytic routines

Three databases cross-walked and checked both for internal sensibility and verification against available external reports

- 1974-1984: DMDC (Defense Manpower Data Center
- 1984-1991: CIVPERSIN
- 1991-present: ACPERS

How we use the tools - some examples

Analytic Tool (WASS+)

Purpose: Understanding workforce dynamics

- Hypothesis testing ground
- Reality check
- If we had the tool 27 years ago we may have made different decisions

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Basic Questions:

- When do people retire? - through upsizing, downsizing, flatsizing
- What happens to retirements as the number of retirement eligibles increase
- What do the retirement bubbles look like?
- What are the key relationships between gains & losses needed to maintain workforce continuity?
- Have the loss rates changed over time?

Uses in planning/policy:

- Should we offer incentives or not?
- What types of replacements & ratios maintain continuity in the workforce?

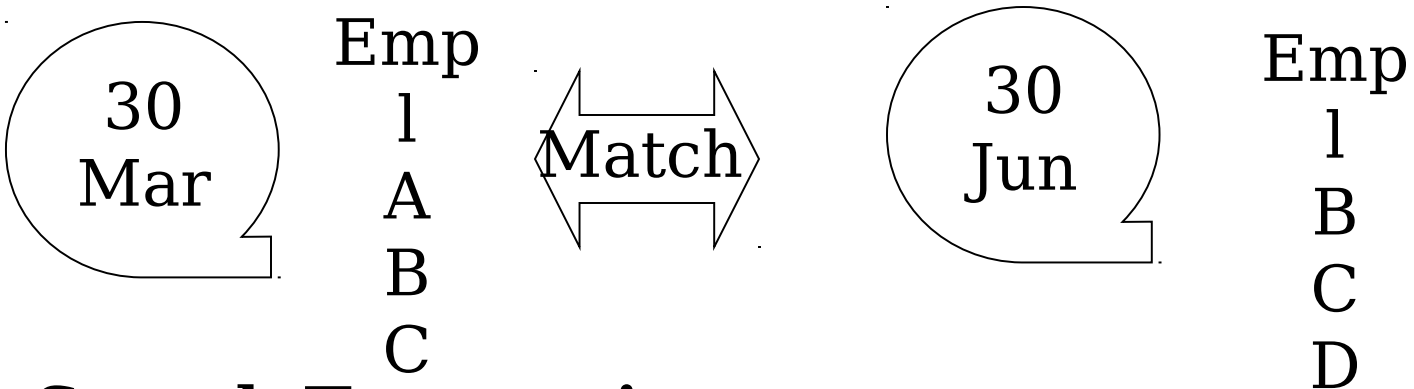
WASS Data Files

Losses / Gains Files

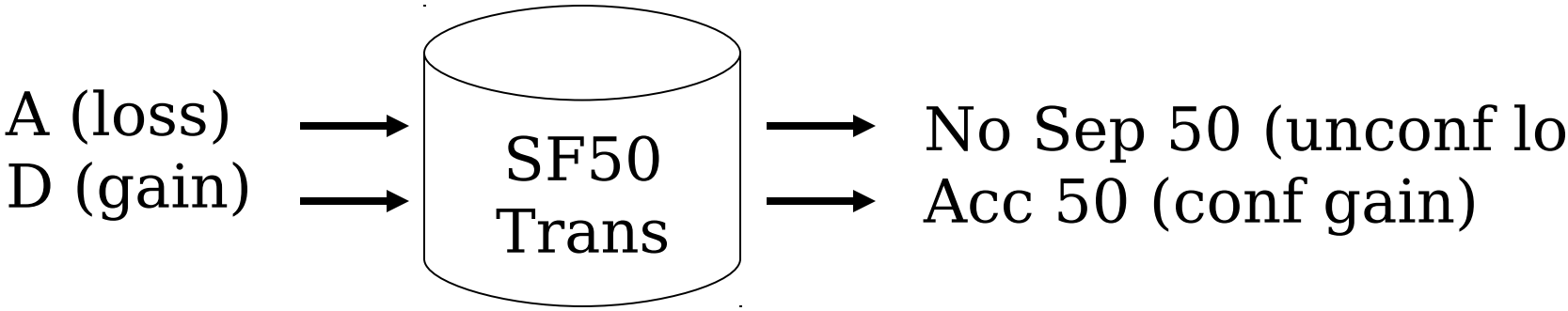
- HQ ACPERS tape received end of quarter
- Snapshot: One record per employee
- 1. Match current quarter to last quarter:
  - New records are gains
  - Missing records are losses
- 2. Search Transaction (SF50) file
  - Confirmed gain or loss if appropriate SF50 is present, otherwise unconfirmed

Conceptual Diagram

1. Match Employees

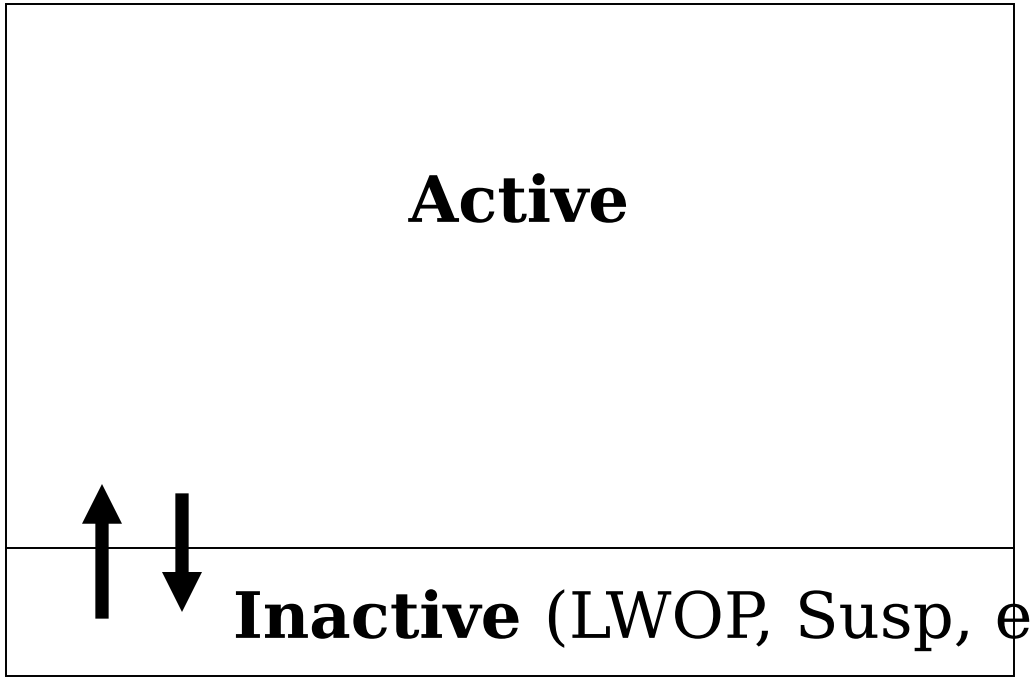


2. Search Transactions



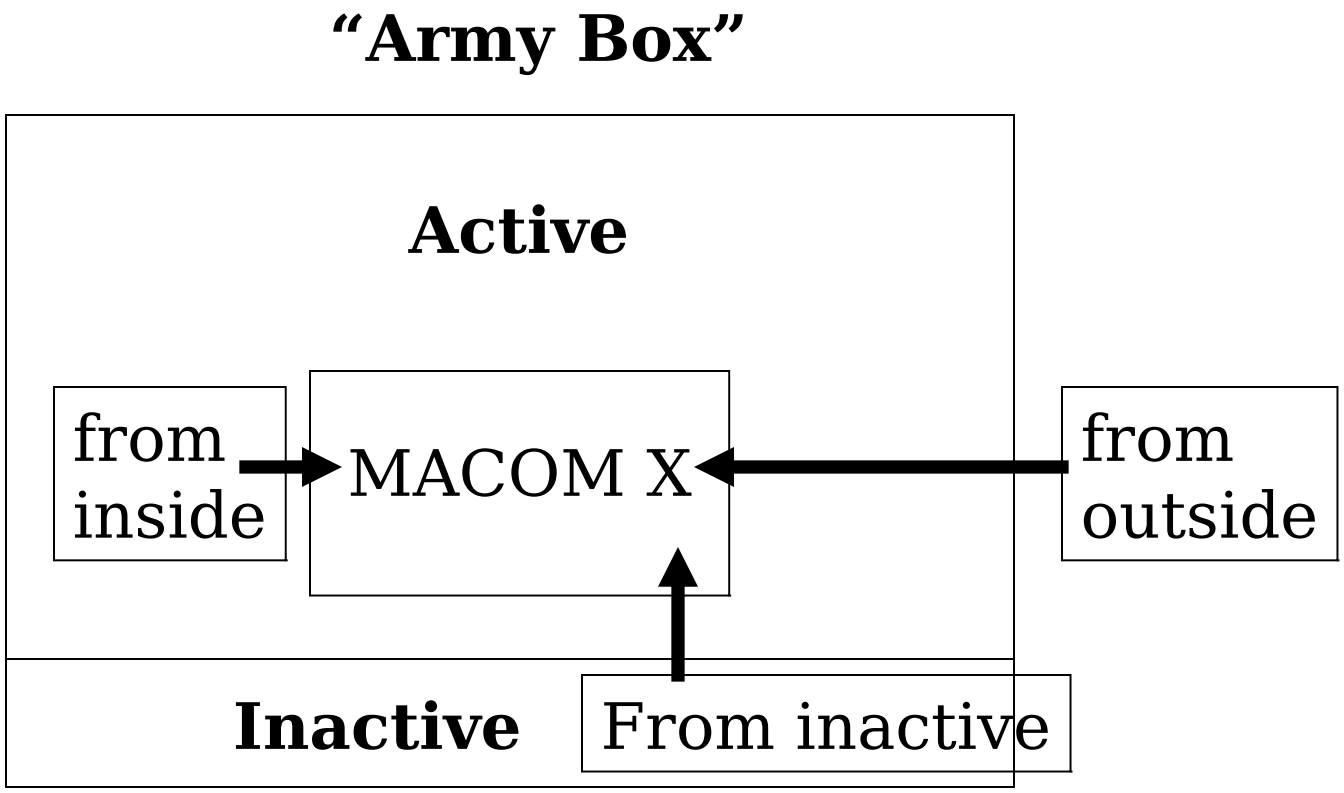
Gains and Separations

The “Army Box”



(People move back and forth)

Gains to a MACOM



(Separations from a MACOM work the same way)

Variables

- Analytic Variables
  - (What you want to count)
  - Select up to 9
  - Regroup if desired
- “By” Variables
  - Select up to 9
  - Regroup if desired

Combination of up to 81 variables

STUDYING TURNOVER

Turnover: Some Key Questions

- **What are the current turnover rates compared to the pre-drawdown?**
- **What should the turnover rate be?**
- **What is a normal turnover rate?**
- **Is industry and government experiencing similar turnover?**

Turnover

- Turnover – what is it, how do you measure it, what influences it, how do you know if you have a turnover problem
  - What is it - generally the rate of losses from the workforce
  - How do you measure it - typical measure is to take all the losses in a given year and divide by the beginning strength of the year - referred to as the total loss rate (TL rate = TL / STR)
  - What influences it - the number of new hires - the more people you hire the more you lose and conversely the less people you hire the less you lose
  - How do you know you have a turnover problem - you don't if you use the typical turnover measure - the total loss rate

Measuring Turnover

- What's the problem with the total loss rate measures of turnover
  - It disregards the magnitude of gains (replacements) from year to year which contributes to losses
  - It provides no comparative info of resignations relative to gains (replacements)
  - It only provides a static view of what is at a snap shot in time assuming all else is equal which it never is

Measuring Turnover

- What other measures should be generated and examined

  - **Adjusted Loss Rates (ADJ)** - Take the total losses for the year, subtract the new hires (gains) and divide by beginning strength - this measure controls for the impact of gains on your losses
    (ADJ = TL-AC / STR)

  - **Replacement Rate (REPL)** - Take the total number of new hire (gains) for the year divide by the total number of losses for the year - this measure tells you how many of your losses you are filling behind - the replacement activity (REPL = AC / TL)

  - **Resignation Rate (RESI)** - Take the total number of resignations for the year and divide by the total number of

Example of Turnover Profiles
Examining turnover rates over historical periods

			75-79				80-88				89-98
PERIODS		**Post Vietnam**				***Growth***				**Drawdow**	
	ADJ	**TL**	**REPL**	**RESI**	***ADJ***	***TL***	***REPL***	***RESI***	**ADJ**	**TL**	**REPL**
Occupations	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
A									8	11	29
B					*0*	*12*	*127*	*61*	5	10	41
C	**3**	**8**	**64**	**25**	*-0.3*	*8*	*106*	*32*	6	10	48
D	**8**	**10**	**29**	**8**	5	9	49	20	5	10	59
E					-21	15	229	46	1	8	94
F	3	7	66	18	-2	7	129	30	4	7	42
G	4	9	48	16	4	9	67	32	4	7	43
H	**6**	**10**	**46**	**34**	-1	10	112	40	5	9	51
I	-2	7	120	29	-1	7	121	40	3	7	57
J	1	7	90	25	-5	8	160	37	3	7	59
K									-2	7	266
L	**1**	**6**	**89**	**25**	-3	8	218	43	2	6	71
M	1	4	93	25	-2	6	124	37	5	7	36
N	**0.3**	**6**	**104**	**22**	-6	7	198	49	3	7	55
O	**-3**	**8**	**133**	**22**	-8	9	197	39	3	9	57
AVE of A THROUGH O	**0.3**	**7**	**98**	**25**	-3	7	136	38	3	7	58
AVE TOTAL WORKFORCE	2	21	92	42	1	19	103	46	7	18	67

CODES

ADJ =Adjusted Loss Rate (TL-AC/STR)
TL=Total Loss Rate (TL/STR)
REPL=Replacement Rate (AC/TL)
RESI= Resignation Rate (NOA317/TL)

Bolded numbers under % show rates under periods of more or less stable end strength

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AVE of A THROUGH O	**7**		7		7	
AVE TOTAL WORKFORCE	21		19		18	

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PERIODS			**Post Vietnam**				***Growth***				**Drawdown**		
	ADJ				***ADJ***					**ADJ**			
Occupations	**%**				***%***					**%**			
A										8			
B					*0*					5			
C	**3**				*-0.3*					6			
D	**8**				5					5			
E					-21					1			
F	3				-2					4			
G	4				4					4			
H	**6**				-1					5			
I	-2				-1					3			
J	1				-5					3			
K										-2			
L	**1**				-3					2			
M	1				-2					5			
N	**0.3**				-6					3			
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AVE of A THROUGH O	**0.3**				-3					3			
AVE TOTAL WORKFORCE	2				1					7			
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